

## **The W7-X ECRH plant: status and recent achievements**

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The 10 MW, 140 GHz, cw, ECRH-plant for W 7-X [1] is in an advanced state of commissioning; the status of the gyrotron plant, transmission system and in-vessel components is briefly reported. The physics background of the different heating- and current drive scenarios is reviewed.

The operation of the TED gyrotrons was recently extended to a 2<sup>nd</sup> frequency of 103.6 GHz at reduced output power and first results are presented. An improved collector sweep system for the W7-X gyrotrons with enhanced power capability and smooth power distribution was developed, results are reported.

A versatile Fast Directional Switch, which is based on fast frequency shift keying of high power microwave beams [2] was investigated and first experimental results are discussed. Such a beam switch/beam combiner can be realized in waveguide or open mirror systems with many possible applications (switching between ports, between different launchers for NTM stabilization etc.).

[1] V. Erckmann, et al. Proc.17th IEEE/NPSS Symp. Fus. Engin. (1997) Vol. 1, p.40

[2] W. Kasperek, et al., Proc. EC-14, Santorini, Greece, (2006), pp. 424-429, ISBN 960-89228-2-8.